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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,933	09/24/2003	Marc J. Beacken	M.BEACKEN 8	4603

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EXAMINER

PHUONG, DAI

ART UNIT	PAPER NUMBER
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2688

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,933	BEACKEN, MARC J.	
	Examiner	Art Unit	
	Dai A. Phuong	2688	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's arguments, filed 10/25/2005, with respect to claims have been considered but are moot in view of the new ground(s) of rejection. Claims 1-23 are currently pending. Applicant is advised to clearly define a term "internal policy broker database".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-5, 7, 9-10, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Zeira et al. (Pub. No: 20040114574).

Regarding claim 1, Zeira et al. disclose a resource brokering system, C-RNC 506 and S_RNC 508, for use with a wireless communication cell having at least one aperture array (fig. 1, [0029] to [0030]), comprising: a virtual sector broker 508 configured to generate, in response to a resource request, an allocation request based on available wireless communication resources of said cell subjected to a brokering process (fig. 1, [0035] to [0036] and [0055]); an internal policy broker database 534 associated with said virtual sector broker (fig. 1, [0031]); and a virtual sector formation unit 506 configured to employ said at least one aperture array to provide dynamic virtual sectorization of said available wireless communication resources in response to said allocation request (fig. 1, [0051] to [0054]).

Regarding claim 2, Zeira et al. disclose all the limitation in claim 1. Further, Schwartz et al. disclose the source brokering system wherein said available wireless communication resources include **one selected from the group** consisting of: beam pattern specification, **spectrum-on-demand**, dynamic provisioning or excess spectrum capacity sales, channel access brokering, and **multiple objective optimization schemes using said available wireless communication resources across a plurality of cell sites** or sectors within a cell site ([0052] and [0053])

Regarding claim 4, Zeira et al. disclose all the limitation in claim 1. Further, Zeira et al. disclose the resource brokering system wherein said wireless communication resources are selected from the group consisting of: a spectrum, a code modulation, a beam pattern, a spatial directionality, **a power, a time interval**, and jointly optimized combinations thereof ([0052] and [0054] to [0055]).

Regarding claim 5, Zeira et al. disclose all the limitation in claim 1. Further, Zeira et al. disclose the resource brokering system wherein said virtual sector formation unit is further configured to receive and send signals of various forms from at least one wireless service provider via a transport network and perform up/down conversions of said signal forms ([0029] to [0030]).

Regarding claim 7, Zeira et al. disclose all the limitation in claim 1. Further, Zeira et al. disclose the resource brokering system wherein said virtual sector broker is further configured to generate said allocation request based on said available wireless communication resources of a plurality of said wireless communication cells ([0051] to [0055]).

Regarding claim 9, this claim is rejected for the same reason as set forth in claim 1.

Regarding claim 10, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 12, this claim is rejected for the same reason as set forth in claim 4.

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 7.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 6, 8, 11, 13-14 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeira et al. (Pub. No: 20040114574) in view of Schwartz et al. (U.S. 6,353,600).

Regarding claim 3, Zeira et al. disclose all the limitation in claim 1. However, Zeira et al. do not disclose the resource brokering system wherein said virtual sectorization includes substantially simultaneously forming dynamically assigned beam patterns.

In the same field of endeavor, Schwartz et al. disclose the resource brokering system wherein said virtual sectorization includes substantially simultaneously forming dynamically assigned beam patterns (col. 6, lines 51-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically

including the resource brokering system wherein said virtual sectorization includes substantially simultaneously forming dynamically assigned beam patterns, as taught by Schwartz et al., the motivation being in order to provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 6, Zeira et al. disclose all the limitation in claim 1. However, Zeira et al. do not disclose the resource brokering system wherein said wireless communication cell has at least two aperture arrays and said virtual sector formation unit is dynamically coupleable to said at least two aperture arrays via an optical network, said virtual sector formation unit further configured to employ said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request.

In the same field of endeavor, Schwartz et al. disclose the resource brokering system wherein said wireless communication cell has at least two aperture arrays (col. 3, lines 21-29) and said virtual sector formation unit (RF router) is dynamically coupleable to said at least two aperture arrays via an optical network (col. 6, lines 34-41 and col. 7, lines 17-30. It should be noted that RF router is a subsystem which is located within the base-station site 40, please see fig. 2), said virtual sector formation unit further configured to employ said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request (col. 6, lines 30-41 and col. 7, lines 17-30. It should be noted that RF router is a subsystem which is located within the base-station site 40, please see fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically including the resource brokering system wherein said wireless communication cell has at least

two aperture arrays and said virtual sector formation unit is dynamically coupleable to said at least two aperture arrays via an optical network, said virtual sector formation unit further configured to employ said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request., as taught by Schwartz et al., the motivation being in order to provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 8, Zeira et al. disclose all the limitation in claim 1. Further, Zeira et al. disclose the resource brokering system wherein said resource brokering system is employed over a region having a plurality of wireless communication cells ([0029] to [0030]). However, Zeira et al. do not disclose said brokering process including deterministic and statistical determinations of allocations of said available wireless communication resources over said region based on a restriction of cost, time, usage or coverage.

In the same field of endeavor, Schwartz et al. disclose said brokering process including deterministic and statistical determinations of allocations of said available wireless communication resources over said region based on a restriction of cost, time, usage or coverage (col. 3, lines 1-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically including brokering process including deterministic and statistical determinations of allocations of said available wireless communication resources over said region based on a restriction of cost, time, usage or coverage, as taught by Schwartz et al., the motivation being in order to

provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 11, this claim is rejected for the same reason as set forth in claim 3.

Regarding claim 13, Zeira et al. disclose all the limitation in claim 9. However, Zeira et al. do not disclose the method further comprising receiving baseband signals from at least one wireless service provider via an optical network and performing up/down conversion of said baseband signals.

In the same field of endeavor, Schwartz et al disclose the method further comprising receiving baseband signals from at least one wireless service provider via an optical network and performing up/down conversion of said baseband signals (col. 7, line 31 to col. 8, line 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically including receiving baseband signals from at least one wireless service provider via an optical network and performing up/down conversion of said baseband signals, as taught by Schwartz et al., the motivation being in order to provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 14, Zeira et al. disclose all the limitation in claim 9. However, Zeira et al. do not disclose the method wherein said wireless communication cell has at least two aperture arrays coupled to an optical network, said method further comprising employing said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request.

In the same field of endeavor, Schwartz et al. disclose the method wherein said wireless communication cell has at least two aperture arrays coupled to an optical network (col. 6, lines 30-42), said method further comprising employing said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request (col. 6, lines 51-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically including wireless communication cell has at least two aperture arrays coupled to an optical network, said method further comprising employing said optical network to steer communication signals dynamically to different ones of said at least two aperture arrays in response to said allocation request, as taught by Schwartz et al., the motivation being in order to provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 16, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 17, Zeira et al. disclose a wireless communication network, comprising: a resource brokering system that receives resource requests from said plurality of wireless service providers (fig. 1, [0029] to [0030]), including: a virtual sector broker 508 configured to generate, in response to a resource request, an allocation request based on available wireless communication resources of said cell subjected to a brokering process (fig. 1, [0035] to [0036]), an internal policy broker 534 database associated with said virtual sector broker (fig. 1, [0031]), a virtual sector formation unit 506 configured to employ said at least one aperture array to

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provide dynamic virtual sectorization of said available wireless communication resources in response to said allocation request (fig. 1, [0051] to [0054]), a per service provider broker agent ([0051] to [0053]), a per resource provider broker agent ([0029] to [0030]), a plurality of aperture array ([0029] to [0030]), and opportunistic measurement functional unit ([0029] to [0030]).

However, Zeira et al. do not disclose a wireless communication network, comprising: a plurality of wireless communication cells, each of said plurality of cells having at least one aperture array coupled to an optical network; a plurality of wireless service provider systems coupled to said optical network.

In the same field of endeavor, Schwartz et al. disclose a wireless communication network, comprising: a plurality of wireless communication cells, each of said plurality of cells having at least one aperture array coupled to an optical network (col. 6, lines 24-41 and col. 7, lines 16-30); a plurality of wireless service provider systems coupled to said optical network (col. 6, lines 24-41 and col. 7, lines 16-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless communication system of Zeira et al. by specifically a plurality of wireless communication cells, each of said plurality of cells having at least one aperture array coupled to an optical network; a plurality of wireless service provider systems coupled to said optical network, as taught by Schwartz et al., the motivation being in order to provides a method for maximizing capacity resources and a cost-effective build-out strategy for cellular network operators.

Regarding claim 18, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 19, this claim is rejected for the same reason as set forth in claim 3.

Regarding claim 20, this claim is rejected for the same reason as set forth in claim 4.

Regarding claim 21, this claim is rejected for the same reason as set forth in claim 13.

Regarding claim 22, this claim is rejected for the same reason as set forth in claim 6.

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 8.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dai A Phuong whose telephone number is 571-272-7896. The examiner can normally be reached on Monday to Friday, 9:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eng George can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dai Phuong
AU: 2688
Date: 12-22-2005


GEORGE ENG
SUPERVISORY PATENT EXAMINER